REMARKS

Claims 28-30 remain for consideration in this application. Those claims are here revised substantially as discussed with the Examiner during a telephone interview on April 1, 2005. No claim presently stands allowable.

Summary of Interview

The undersigned thanks the Examiner for the aforementioned interview. During that interview the undersigned proposed amending Claims 28-30 to state that the signal (S) contains information dependent on and corresponding to incremental movement covered during the beginning of the substantially vertical movement. The Examiner said the meaning of "a path covered during the beginning..." was not clear, because a "vertical path" is already defined in the claims, and the undersigned suggested replacing "a path" with --an incremental movement covered during the beginning...". The undersigned also proposed revising Claim 30 to positively recite that the drive (2) brakes the vertical movement of the load bearing element in response to the signal (S).

Concerning prior art, the undersigned discussed with the Examiner the differences between *Joraku* (US 3,841,605) and the invention as defined in representative Claim 28. The undersigned pointed out that *Joraku* '605 "balances" a load only after that load is first lifted to a desired position, after which the operator then manually sets the speed control to zero speed and manually switches from speed-control operation to load-holding operation. It was thus argued, on behalf of the Applicant, that *Joraku* discloses an indirect form of load presetting, namely, by first lifting the load to a desired position and then switching from a lifting mode to a load-holding mode of operation.

The Examiner suggested that the Applicant submit the proposed revised claims and the arguments supporting the patentability of those claims over the cited art. The

Examiner agreed to reconsider the rejections based on the present references, but no agreement was reached concerning allowance of any specific claim.

Discussion of Amended Claims

Claim 30 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the limitation "so that the vertical movement...on the signal (S)" fails to positively recite that the device is braked or has brake means. In response to that rejection, the final paragraph of Claim 30 is amended to state that "the drive (2) brakes the vertical (Z-Z) movement...in response to the signal (S)". This amendment to Claim 30 is submitted as overcoming the formal rejection of that claim.

Claims 28 and 29 are rejected as unpatentable over *Joraku* (US 3,841,605) in view of *Habisohn* (US 5,960,969). The Applicant respectfully traverses that rejection as possibly applied to currently-amended Claims 28 and 29.

The current amendments to Claims 28 and 29 differ slightly from the amendments proposed to the Examiner during the telephone interview mentioned above. The current amendments state that the device (11) generates the signal (S) "which contains information dependent on and corresponding to an incremental course of movement covered during the beginning of a substantially vertical movement of the load bearing element (5)". The term --incremental course of movement-- finds antecedent basis at page 7, lines 20-23 of the specification. For that reason, the current amending language was chosen instead of "an incremental movement..." as previously discussed with the Examiner.

Comparing the apparatus of Claim 28 with *Joraku* '605, that reference discloses apparatus having separate force control means and speed control means (column 1, lines

53-55). The force control means of *Joraku* '605 stores the weight of a load and maintains the generation of a desired force necessary to lift the load, and the speed control means maintains the speed for moving the load at a pre-designated value (column 1, lines 54-60). Accordingly, *Joraku* '605 describes first a moving of the load and then, when the load is lifted to a desired position, a "balancing" whereby the load cannot be moved because the operator has manually set its speed is zero. Please see paragraph 4, lines 8-17 and column 6, lines 21-25 for the relevant operation according to *Joraku* '605.

The operation of *Joraku* '605 is discussed by the Applicant at some greater length on pages 10-13 of the Remarks in the Fourth Response, filed on 02 September 2004.

According to the present invention as claimed, the torque of the drive (2) is automatically increased until the beginning of movement ("until a substantially vertical (Z-Z) movement of a load bearing element (5) out of the rest position *begins*"). In response to this event, the device (11) generates the signal (S) containing information dependent on and corresponding to an incremental course of movement covered during the beginning of a substantially vertical movement. This signal (S) provides an input signal for controlling the drive so as to balance the load in the vertical (Z-Z) path. When the signal (S) bears a certain deviation from a predetermined value (W), the load is balanced and the drive can be constant switched to maintain the load balanced in the substantially vertical path.

In *Joraku* '605, the current corresponding to motor torque needed to lift the load (column 3, lines 59-63) is not generated in response to movement of the load, and does not contain information dependent on and corresponding to an incremental course of movement during the beginning of movement, as recited in Claims 28-30. In the present

invention, the signal (S) represents, in electrical form, information about the initial displacement (incremental course of movement) out of the rest position. With this invention, neither a force nor a speed is measured or controlled, which has the advantage that the control mechanism for balancing the load according to the invention is not only relatively safe, but also much easier than that according to *Joraku* '605. In particular, manual switching apparatus and functions (*Joraku* '605, column 6, lines 25 and 26) are eliminated.

Habisohn, the secondary reference, is cited as showing equivalency of speed signals, acceleration signals, and torque signals in a crane motor control system. However, merely applying those teachings to *Joraku* '605 does not overcome the above-discussed teaching deficiencies of that primary reference, relative to the present invention as recited in Claims 28 and 29.

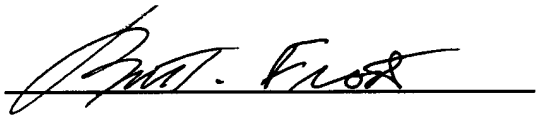
Accordingly, and for the reasons discussed above, the Applicant respectfully submits that Claims 28 and 29 define a system for controlling a load lifting apparatus that would not have been obvious to one of ordinary skill, based on the cited art, at the time the present invention was made.

Claim 30 is rejected as unpatentable over *Joraku* (4,087,078) in view of *Habisohn* and *Motoda* (US 3,945,612). This rejection points out that *Joraku* '078 shows the same control circuit for balanced lifting as used by *Joraku* '605, but also coordinates the balancing lifting with a brake device. With regard to the control circuit disclosed by *Joraku* '078/'605, Claim 30 is amended to include the same distinguishing elements, discussed above, as in Claims 28 and 29, namely, the device (11) generates a signal (S) containing information dependent on and relating to an incremental movement during an

initial course of substantially vertical movement of the load bearing element. This signal (S) serves as an input signal for controlling the drive (2) to balance the load in the vertical path, in response to a zero deviation of that signal from a predetermined value (W). The cited *Joraku* references fail to disclose or teach those elements of the system defined in Claim 30, and that system would not have been obvious to one of ordinary skill in view of the *Joraku* references without regard to the secondary references *Habisohn* and *Motoda*.

The foregoing is submitted as a complete response to the Office Action identified above. The Applicant, mindful of the length and nature of prosecution for this application, respectfully submits that the application as here amended is in condition for allowance and solicits a notice to that effect.

Respectfully submitted,
MERCHANT & GOULD



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Roger T. Frost
Reg. No. 22,176

Merchant & Gould, LLC
P.O. Box 2903
Minneapolis, MN 55402-0903
Telephone: 404.954.5100